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THE PLAN OF SCIENTIFIC RESEARCH WORK OF THE ACADEMY OF  
SCIENCES U. S. S. R. AND THE PLAN FOR THE PREPARATION OF  
SCIENTIFIC CADRES FOR THE YEAR 1950

Report of Chief Scientist Secretary of the Academy of Sciences U. S. S. R.  
Acad. A. V. Topchiev

(N.B. The less informative and more rhetorical passages have been omitted - Translator.)

Before discussing the plans of scientific research to be adopted in 1950 and the plan for the preparation of scientific cadres in 1950, Topchiev examines the failures of several institutes to achieve their targets in 1949.

He draws attention to the remarkable successes in physics and mathematics, particularly to the radiation of atomic nuclei, the determination of the nature of primary cosmic rays with the aid of sounding balloons, the explanation of luminescence and its practical uses, the construction of very delicate photo-electric instruments and to the new methods for the recording of distant earth tremors.

He also notes the favourable results obtained by chemists from the study of the problems of organic synthesis, acid reactions, structures of organic compounds, catalysis, oxidation, combustion and explosion. A serious study was made of the chemico-technological problem by the petroleum industry. Scientific expeditions were carried out by the Geologo-Geographic science department in Siberia, Central Asia, the Caucasus and in other parts of the Soviet Union. The majority of expeditions in Siberia, Central Asia, the Caucasus, Azerbaydzhan, the province of Kaliningrad, in the north, the Sea of Okhotsk and other places completed their work according to plan. A survey of the northern Caspian Sea was made and a map produced, thereby satisfying a need of the fishing industry. Work on the volcanics of the Kamchatka peninsula and adjacent coastal areas was also completed.

With regard to less successful results, Topchiev named the following organizations as having failed to fulfil their plans for the year 1949. Mistakes in the work of the Geological Institute were noted. The Council for the Study of the Production Strength, Academy of Sciences, U.S.S.R., was accused of mismanagement, maladministration of expeditions and financial muddling. The Soils Institute did not co-operate sufficiently with agricultural organs, circumscribed its own activities and neglected work in the experimental field. The Economics Institute required to replan its work-programme, which it had not done despite a recommendation to the effect by the Praesidium of the Supreme Soviet on the 28th August 1949. The Philosophy Institute systematically exceeded the time-limits allowed for scientific research. The Institute of Social Sciences did not fulfil its plans according to schedule, e.g. the History Institute had not published its "World History", which should have appeared in 30 volumes. It was pointed out that this history even in 10 or 12 volumes would be preferable to no history at all! The "History of the U.S.S.R." awaited publication on the completion of the "World History".

The organization of the Praesidium of the Supreme Soviet during 1949 is discussed, the measures to be taken for the strengthening of control and exertion of its influence throughout its ramifications. An examination of the work of various institutes is made and special attention is given to the development of the "Filiats" of the Academy of Sciences.

Turning to the 1950 plan, Topchiev foresees an extension of the activities of the Academy of Sciences in the people's economy, the co-ordination of the activities of the Academy Institutes, and the establishment of the scientific academies of the Union Republics, "Filiats" of the Academy and ministry and departmental institutes.

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A further development of the ideas of Lomonosov, Lobachevsky, Belinsky, Chernishevsky, Mendeleev, Dzukovsky, Michurin, Pavlov, Dokuchayev, Williams, Karpinsky, Marr and others is to be made.

The plan for the year 1950 falls into 6 parts:-

- (i) Plan of scientific work.
- (ii) Plan for the application of research work.
- (iii) Expeditions plan.
- (iv) Plan of conferences and meetings.
- (v) Plan for the preparation of scientific cadres.
- (vi) Plan for the publications of the Academy of Sciences.

Mention is made of the mechanical-structural problems to be studied. These are - the structure of solids, the geo-chemistry and chemistry of isotopes and other rare elements, work in the field of large-scale organic synthesis based on the process of heterogeneous catalysis, ultra-high pressures and high temperatures in their relation to the products of petroleum, coal and acetylene, work in the field of chemical and bio-chemical synthesis and the generation of albumens, vitamins, hormones, anti-biotics, as well as a series of specific preparations.

The Institute departments of physico-mathematics, chemistry and biological sciences will revive researches into the problems of gutta-percha, natural and synthetic rubber and other high molecular compounds.

Geological scientific work is to be devoted to the problems of the location of and surveying for valuable mineral products. Researches are to be carried out on problems of petroleum and motor-spirits. These are to be carried out by a large number of bodies. In these researches, together with the Petroleum and Geological Institutes, taking part will be the Institutes of Organic and Physical Chemistry, of Oceanology, Marine Hydro-Physics, Geo-physics, Energetics, Mechanics, Mining, the Air-methods Laboratory and also the scientific establishments of the Academy of Sciences of Azerbaydzhan and Georgia, the Ural "Filial" and mid-Volga (Kazan) "Filial" of the Academy of Sciences. For the co-ordination of scientific-research work in the field of petroleum, a permanent body, called the Petroleum Commission, was created by the Praesidium of the Academy and the Ministry of the Petroleum Industry.

Researches are to be instituted for the study of the more advanced parameters of gaseous states, utilisation of fuel, automatization of production processes, radio-communication in mines, theories of plasticity and stability, and powder metallurgy.

It is planned also to study the geo-physical problems of seismographic prediction, seismic area-division, anti-seismic structure, atmosphere physics, weather forecasting, and the control of rainfall by atmospheric precipitation.

Problems of Michurin's biology to be examined are - the exchange of substances, heredity, the reciprocal relations of the organism and its habitat.

Development of the teachings of Dokuchayev and Williams will bring together biologists, soil scientists, geologists and hydro-geologists. Soil research will be conducted in the non-black earth and steppe regions of European S.S.R., as well as in desert and semi-desert areas.

Vast works arising out of soil-conservation involving planting of forests of leaf-bearing trees will be undertaken. The trees will be utilized for industrial purposes. The following bodies are taking part in these researches - the Institutes of Forestry, Soil, Botany, Geography, Plant Physiology, Zoology, the Laboratory of Hydro-geological problems and other scientific establishments.

The growing of tea will be developed in the areas of the Ukraine, Moldavia, Azerbaydzhan, South and East Russian Soviet Federated Socialist Republics.

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In its decision of the 14th July 1949 the Praesidium of the Supreme Soviet laid stress on the deficient supply of candidates and the lack of direction of their training and noting the insufficient interest shown by Academicians and Associate Members of the Academy of Sciences of the U.S.S.R. in the training of candidates made known its serious concern at the small number of candidates admitted who had defended their theses within the permitted allotted time. Departmental bureaux must see to it that the decisions of the Praesidium concerning the preparation of scientific cadres are carried out without fail.

It is now high time to make preparations for the admission of candidates for the year 1950. The Praesidium of the Academy of Sciences delegated to the departmental Bureaux to examine the question of the admission of candidates with reference to the preparation of scientific-research and scientific-pedagogic cadres and to determine in what subjects the candidates are to specialize, each institute specifying the subjects to be undertaken.

Altogether 330 candidates will be admitted to Institutes of the Academy of Sciences in 1950, 190 - to Central Institutes and 140 - to "Filials" of the Academy of Sciences.

100 candidates and 200 candidates for doctorates will be taken for training teachers of science.

The departmental allocation of candidates of the Academy of Sciences in 1950 will be as follows:

Department of Physico-Mathematics	-	34 candidates
" " Chemistry	-	17 "
" " Geologo-Geography	-	10 "
" " Biology	-	22 "
" " Technical Sciences	-	34 "
" " History and Philosophy	-	26 "
" " Economics and Law	-	20 "
" " Literature and Languages	-	27 "

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Field and laboratory researches will be carried out on irrigated cultivation in Transcaucasia and Middle Asia in co-operation with scientific establishments of Azerbaydzhan, Turkmen, Uzbek, Kazakh and Tadzhik republics.

The Pavlov Physiological Institute, Institutes of Animal Morphology, Zoology and Genetics and Helminthological laboratories will continue working on the problem of increasing the productivity of animal husbandry.

The Academy of Sciences is to examine the important regional problems of "the creation of new centres for the metallurgical industry" and "the expansion of fuel-energy basis of the U.S.S.R. (coal, water-power etc.)". Special attention will be directed by all the departments of the Academy of Sciences to the problem of the reconstruction of Moscow. The complex work of the Institute's departments of Economics and Law and departments of History and Philosophy of the Lenin All-Union Academy of Agricultural Sciences will be continued by a study of the problem of the history of "Soil-Culture".

Attention is being directed to the scientific activities of the "Filials" of the Academy of Sciences. The "Filials", it is reckoned, are to study 30 problems, embracing many sciences and of importance to individual republics. They are to co-ordinate their activities more closely with local bodies.

Altogether 343 scientific problems are to be examined by the Academy of Sciences. 545 work-programmes are to be put into effect, of which 360 are intimately connected with industry, agriculture and health. Included in the state plan for the introduction of new work-schemes, the Academy of Sciences is promoting 48 very important work-programmes. 332 expeditions are to be organized by the Academy of Sciences, 173 of which are to be managed by "Filials" of the Academy. Large expeditions are to occupy themselves with questions relating to agriculture, animal husbandry, palaeontology, the history of culture and the archeology of Mongolia. A number of expeditions are to be organized to make excavations in the territories of South Russia, Siberia, Altai and Central Asia.

The Academy of Sciences has planned for the year 1950 the co-ordination and integration of the scientific activities of the various outlying institutes, higher-education establishments and Academy of Science's Institutes of the Union Republics. To undertake this work the holding of 183 scientific conferences and meetings are planned, in particular on physical chemistry, synthesis of large molecules, theoretical electro-chemistry, analytical chemistry, corrosion, mineralogy, soil shades, tectonics, petrography and hydro-geology. The problems to be discussed include long-distance electro-transmission, the electrification of agriculture, the automation of the petroleum, chemical, metallurgical and gas industries, fuel, problems of mechanics, machine construction and others.

The departments of biological sciences are to hold meetings on the problems of Michurin's biology, the grass-crop system of field husbandry and the creation of forest-belts for soil preservation.

A series of meetings will be devoted to the study of rubber and gutta-percha, albumen, anti-biotics and parasitic worms. It is planned to hold an All-Union Congress of Entomologists, a meeting on botanical gardens and a conference dedicated to a study of higher nerve activities.

The Academy of Sciences of the U.S.S.R. has become not only the centre of scientific thought in our country, but also the leading body for the education of young Soviet scientists. The scope of its preparation however, still lags behind the growing requirements of our state in scientific cadres and is far from exhausting the potential strength of the Academy of Sciences. It was for this reason that in 1949 the Praesidium of the Supreme Soviet of the U.S.S.R. devoted itself to the preparation of scientific cadres and took requisite measures towards the improvement of conditions for the selection of academic candidates.

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